Application No.: 09/804481 Docket No.: WIBR-523-101

REMARKS

Rejections of Claim 32-35, 39-46, and 48-53 under 35 U.S.C. § 112, First Paragraph

Claims 32-35, 39-46 and 48-53 are rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to convey to one skilled in the art that the inventors had possession of the claimed invention.

Applicants note that claims 32 and 42 have been amended to recite a recognition site for a Type II dual cleavage restriction enzyme capable of cleaving once upstream of the recognition site and once downstream of the recognition site. Claims 39 and 49 have been amended to independent form and recite BaeI. All other claims depend directly or indirectly from claims 32, 39, 42 and 49.

The Examiner appears to focus on the point that the subject specification provides a single working example utilizing a BaeI restriction enzyme recognition site. However Applicants respectfully submit that BaeI is but one example of a suitable restriction enzyme recognition site within the more broadly described invention. BaeI is representative of the class of enzymes that cleave on both sides of the recognition sequence; there are many other well-defined members of this class known to the skilled artisan (e.g., AloI, BpII, Bst44I, BcgI, BsaXI, Bsp24I, CjeI, CjePI, HaeIV, Hin4I and PpiI). Having described this aspect of the invention both broadly (i.e., use of a recognition site for a Type II dual cleavage restriction enzyme capable of cleaving once upstream and once downstream of the recognition site, such that digestion with a single restriction enzyme excises from the vector a restriction fragment which includes the recognition site and forms insertion sites in the vector) and narrowly (i.e., BaeI as an exemplary restriction enzyme), Applicants must be considered to have been in position of the invention as claimed at the time the application was filed. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejections of Claims 32-35, 39-46, and 48-53 under 35 U.S.C. § 112, First Paragraph

Claims 32-35, 39-46 and 48-53 are rejected under 35 U.S.C. §112, first paragraph, as allegedly lacking enablement. The Examiner states that while the specification is enabling for Type II restriction enzymes wherein the cuts are made "outside" the recognition site, the specification does not enable the skilled artisan to make and use the invention with regard to

Type I or Type III enzymes or Type II enzymes wherein the cut is made inside the recognition site.

Applicants note that claims 32 and 42 have been amended to recite a recognition site for a Type II dual cleavage restriction enzyme capable of cleaving once upstream of the recognition site and once downstream of the recognition site. Claims 39 and 49 have been amended to independent form and recite BaeI. All other claims depend directly or indirectly from claims 32, 39, 42 and 49. Accordingly, the claims have been limited to subject matter which the Examiner has indicated is enabled by the specification, and reconsideration and withdrawal of the rejection are respectfully requested. Applicant reserves the right to pursue other embodiments of the invention in a continuing application.

Rejections of Claims 32-34, 37-46, and 48-51 under 35 U.S.C. § 102(b)/ § 103(a)

Claims 32-34, 37-46, and 48-51 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Verhasselt *et al.* (Yeast, 1998, 13:241-250) as evidenced by Sears *et al.* and Genomenet EMBL-today Entry No. X89514. Applicants respectfully traverse this rejection and contend that the rejection is moot in light of the amended claims.

The standard for anticipating a claim is clearly outlined in MPEP 2131, and this standard is further supported by the Courts. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1978). Applicants contend that Verhasselt *et al.* fail to satisfy the criteria for anticipating the present invention.

Solely for greater clarity, Applicants have amended independent claims 32 and 39 to recite that the snRNA-encoding portion of said snRNA-encoding nucleotide sequence has been modified to contain a recognition site for a Type II dual cleavage restriction enzyme (claim 32) or for BaeI (claim 39). Similarly, independent claims 42 and 49 have been amended to recite that the snRNA-encoding portion of said snRNA-encoding nucleotide sequence comprises an insertion cassette between two insertion sites, wherein said two insertion sites are formed by digestion with a single Type II double cleavage restriction enzyme (claim 42) or with BaeI (claim 49) to excise from said vector a restriction fragment

that contains a recognition site for said restriction enzyme. Applicants submit that the pending claims as amended are neither anticipated by nor rendered obvious by Verhasselt *et al.* alone or in combination.

Verhasselt *et al.* disclose a 37.6-kb cosmid sequence isolated from yeast which comprises a gene encoding an snRNA (snR6). This snR6-encoding gene (designated as Gene Element L2910) is located between positions 2843-2954 of Entry No. X89514 (see Verhasselt *et al.*, page 243, Table 1; and Genomenet EMBL-today Entry No. X89514, page 2). By contrast, a BaeI recognition site is located at positions 5864-5874 of X89514 (*i.e.*, Gene Element L2916), which is **outside** the snRNA-encoding portion of the gene (*i.e.*, Gene Element L2910). See Genomenet EMBL-today Entry No. X89514, page 9.

In addition, Verhasselt *et al.* do **not** teach that the snRNA-encoding portion of the gene (*i.e.*, Gene Element L2910) has been modified to contain a recognition site for a Type II dual cleavage restriction enzyme (*e.g.*, BaeI). Moreover, Verhasselt *et al.* do **not** teach that the snRNA-encoding portion of the gene (*i.e.*, Gene Element L2910) has been modified to comprise an insertion cassette between two insertion sites. Thus, Verhasselt *et al.* fail to teach the invention claimed in the claims presented herein.

Applicants further traverse the rejection under 35 U.S.C. § 103(a). Pursuant to MPEP 2143 and in view of *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991), "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."

Applicants have presented the arguments above that Verhasselt *et al.* simply do not teach all the claim limitations. The Examiner has not cited any other reference which bridges the gap between Verhasselt *et al.* and the claimed invention. Further, Applicants submit that Verhasselt *et al.* fail to provide any suggestion or motivation for one of skill in the art to develop a recombinant vector which comprises a modified snRNA-encoding nucleotide sequence as recited in the instant claims.

In view of the above, Applicants submit that the instant claims are not anticipated or rendered obvious by Verhasselt *et al.* Reconsideration and withdrawal of the rejection are respectfully requested.

Rejections of Claims 32-35, 38-46, and 48-51 under 35 U.S.C. § 102(b)/ § 103(a)

Claims 32-35, 38-46, and 48-51 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, Shambaugh *et al.* (Molecular and Biochemical Parasitology 1994, 64, 349-352) as evidenced by Sears *et al.* and NCBI Entry No. L22246. Applicants respectfully traverse this rejection and contend that the rejection is moot in light of the amended claims.

Shambaugh *et al.* disclose an about 6-kb DNA sequence (designed in NCBI Entry No. L22246) isolated from *Ascaris lumbricoids* which contain four U1 snRNA genes. The four U1 snRNA-encoding genes are located at positions 2071-2236, 3195-3358, 4551-4715, and 5535-5700 of Entry No. L22246, respectively (see NCBI Entry No. L22246, page 1). By contrast, a BaeI recognition site is located at positions 348-358 of L22246, which is **outside** any of the four U1 snRNA-encoding genes.

In addition, Shambaugh *et al.* do not teach that any of the U1 snRNA-encoding portions of the genes has been modified to contain a recognition site as recited in the claims (*e.g.*, BaeI). Moreover, Shambaugh *et al.* do not teach that any of the U1 snRNA-encoding portions of the genes has been modified to comprise an insertion cassette between two insertion sites as recited in independent claims 42 and 49. Thus, Shambaugh *et al.* fail to teach the invention as claimed.

Applicants further traverse the rejection under 35 U.S.C. § 103(a). Pursuant to MPEP 2143 and in view of *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991), "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."

Applicants have presented the arguments above that Shambaugh *et al.* simply do not teach all the claim limitations. The Examiner has not cited any other reference which bridges the gap between Shambaugh *et al.* and the claimed invention. Further, Applicants submit that Shambaugh *et al.* fail to provide any suggestion or motivation for one of skill in the art to develop a recombinant vector which comprises a modified snRNA-encoding nucleotide sequence as recited in the instant claims.

In view of the above, Applicants submit that the instant claims are not anticipated or rendered obvious by Shambaugh *et al.* Reconsideration and withdrawal of the rejection are respectfully requested.

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CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the pending claims are in condition for allowance. Early and favorable reconsideration is respectfully solicited. The Examiner may address any questions raised by this submission to the undersigned at 781-622-5930. Please charge any deficiency or credit any overpayment in the fees that may be due in this matter to **Deposit Account No. 50-3655, under Order No. WIBR-523-101.**

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Respectfully submitted,

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